

Please assemble ASAP.

Work Order ID 142166

142166

Page 1

Item ID: D4857-041 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Wiper Deflector Assembly
 Start Date: 3/1/2016 Start Qty: 6.00 ***6*** Cust Item ID:
 Required Date: 3/11/2016 Req'd Qty: 6.00 ***6*** Customer:
 Reference:

Approvals: Process Plan: SH Date: 2016030 Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4857	REV F								

110 0.00
110
 Small Fab Memo 0.00 6 FF MAR 02 2016
 Small Fab Drill holes for D4857-1 as per dwg using DT10028

120 QC5- Inspect part completeness to step on W/O 0.00
120
 QC Memo 0.00 (6) DAS 38 9-89
 Quality Control MAR 03 2016

130 0.00
130
 HandFinish Memo 0.00 6 DAS 41 9-89
 Hand Finishing Touch up holes with primer as per dwg 16-3-3
 A/R PRIMER BATCH: 133399

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause		FAULT CATEGORY					
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER :	

March 01, 2016 11:57:18 AM

Page 3

ML5 MAR 09 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

Picklist Print

March 01, 2016 11:57:23 AM

Page 1

Work Order ID: 142166

142166

Parent Item: D4857-041

D4857-041

Parent Item Name: Wiper Deflector Assembly

Start Date: 3/1/2016

Required Date: 3/11/2016

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP REV:A NEW ISSUE 13-07-17 JLM VERIFIED BY:DD IPP
REV:B AS PER REV F JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D4857-M		Manufactured	No				Each	17.0000		6			
---------	--	--------------	----	--	--	--	------	---------	--	---	--	--	--

D4857-M

Wiper Deflector

FF

MAR 02 2016

Location

Loc Qty

Loc Code

cck132

1

138594

1

cck136a

16

139092

4

140559

12

Each

41.0000

12

FF

MAR 07 2016

D4944-1

D4944-1

Gasket

Manufactured No

Location

Loc Qty

Loc Code

GA

41

137366

3

140908

8

141256

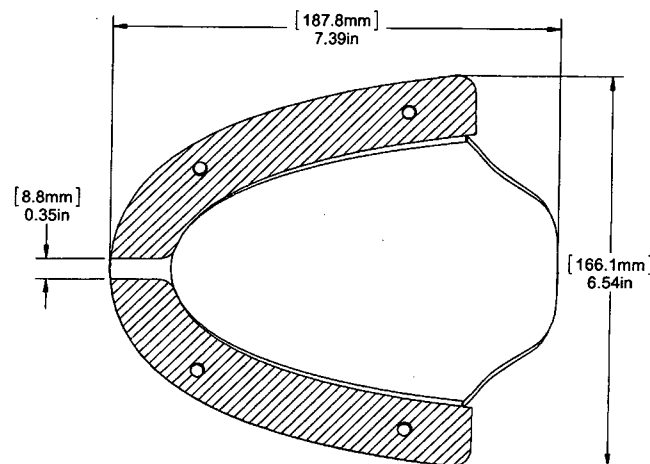
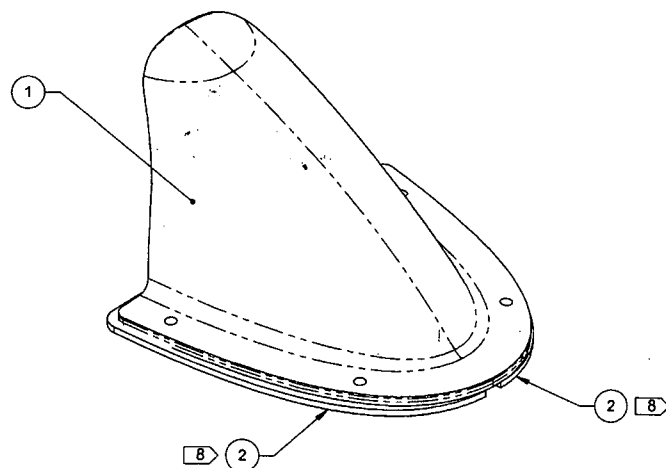
20

141357

10

3
8
1

ITEM	QTY	P/N	DESCRIPTION
	X	D4857-041	WIPER DEFLECTOR ASSY
1	1	D4857-1	WIPER DEFLECTOR
2	2	D4944-1	GASKET



D4857-041 WIPER DEFLECTOR ASSY

RELEASED

2015 JUN 08

ECN 15-582

20160301 SHA 142166

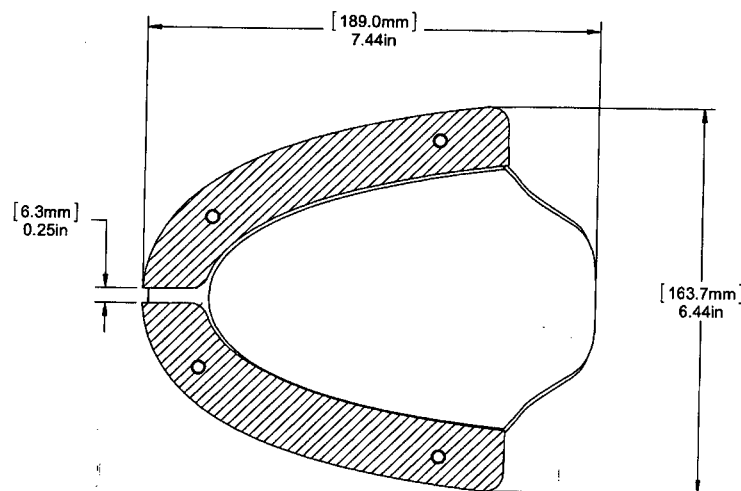
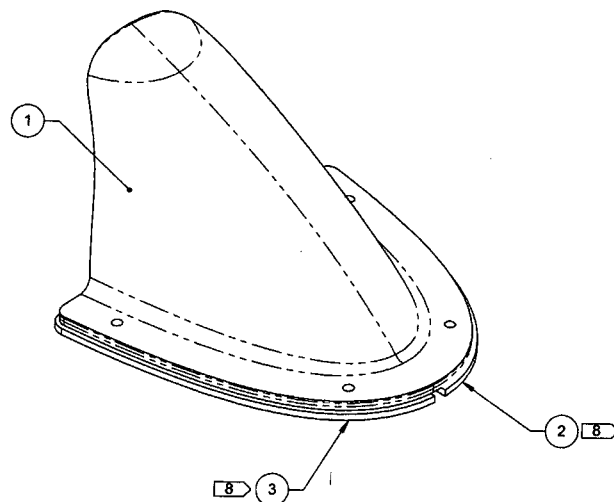
F	SHT 1 ADDED -041. ADDED D4857-2M (SHEET 8) AND RELABELED D4857-M TO D4857-1M (ZN B5-7). UPDATED D4757-044 (ZN B5-3). REVISED NOTES 1, 8 AND 10 (ZN A8-4, ZN A8-5, ZN A8-6, ZN A8-7, ZN A8-8). UPDATE PART WEIGHTS	AK / AJS	15.06.03
E	REVISE NOTE 6) (ZN A8-1, A8-2, A8-3); AND NOTE 8) (ZN A8-1, A8-2, A8-3)	AK	14.06.05
D	ADDED D4857-043 (ZN C7-1), D4857-044 (ZN C7-2), D4857-3 (ZN C7-4), D4857-4 (ZN C7-5) AND D4857-M (ZN C7-8)	AK	14.05.13
C	ADDED 4 MOUNTING HOLES	DW	13.12.09
B	REVISED BOM, DRAWING VIEWS, NOTES	PB	13.08.13
A	NEW RELEASE	DB	13.05.23
REV.	DESCRIPTION	BY	DATE

APPROVED

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 1 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
DATE	15.06.03	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

- NOTES:**
- 1) MATERIAL: N/A
 - 2) FINISH: N/A
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
 - 5) BREAK SHARP EDGES: N/A
 - 6) IDENTIFICATION: IDENTIFY WITH DART P/N D4857-041, REVISION, BATCH NUMBER, AND DATE OF MANUFACTURE, AS PER QSI 044 METHOD 6.1
 - 7) WEIGHT: 0.38 lbs (0.17 kg)
 - 8) BOND D4944-1 GASKETS TO EDGE OF PART USING DOW CORNING 736 ADHESIVE

ITEM	QTY -043	P/N	DESCRIPTION
	X	D4857-043	WIPER DEFLECTOR ASSEMBLY, LH
1	1	D4857-3	WIPER DEFLECTOR LH
2	1	D5117-1	GASKET
3	1	D5117-3	GASKET



D4857-043 WIPER DEFLECTOR ASSEMBLY, LH

RELEASED

2015 JUN 08

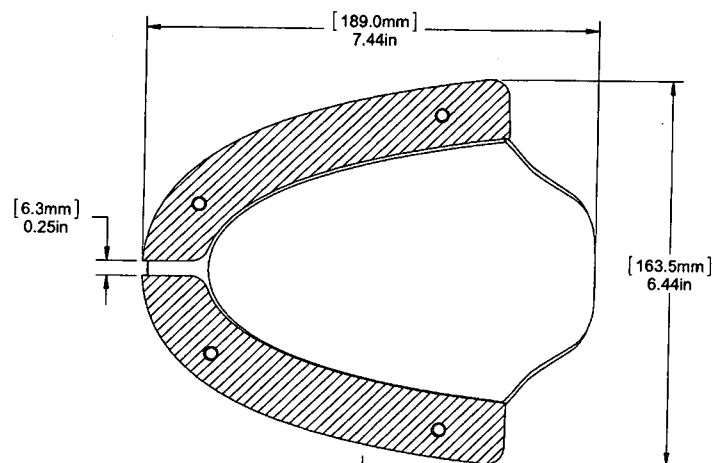
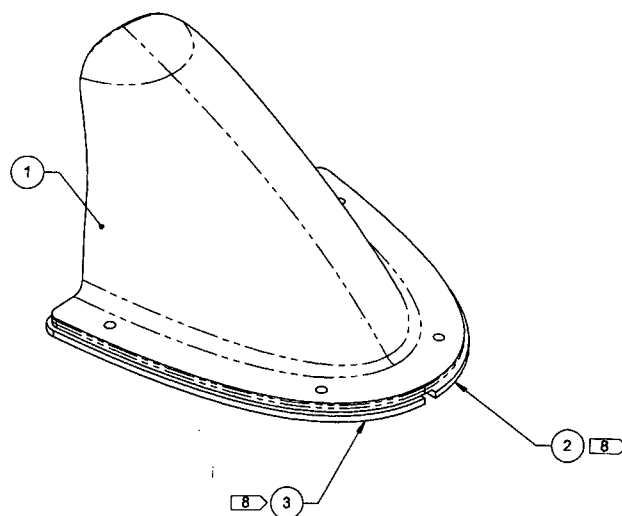
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N D4857-043, REVISION, BATCH NUMBER, AND DATE OF MANUFACTURE, AS PER QSI 044 METHOD 6.1
- 7) WEIGHT: 0.38 lbs (0.17 kg)
- 8) BOND D5117-1/-3 GASKETS TO EDGE OF PART USING DOW CORNING 736 ADHESIVE

APPROVED

DESIGN		DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 2 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
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ITEM	QTY -044	P/N	DESCRIPTION
	X	D4857-044	WIPER DEFLECTOR ASSEMBLY, RH
1	1	D4857-4	WIPER DEFLECTOR
2	1	D5117-5	GASKET
3	1	D5117-7	GASKET



D4857-044 WIPER DEFLECTOR ASSEMBLY, RH

RELEASED

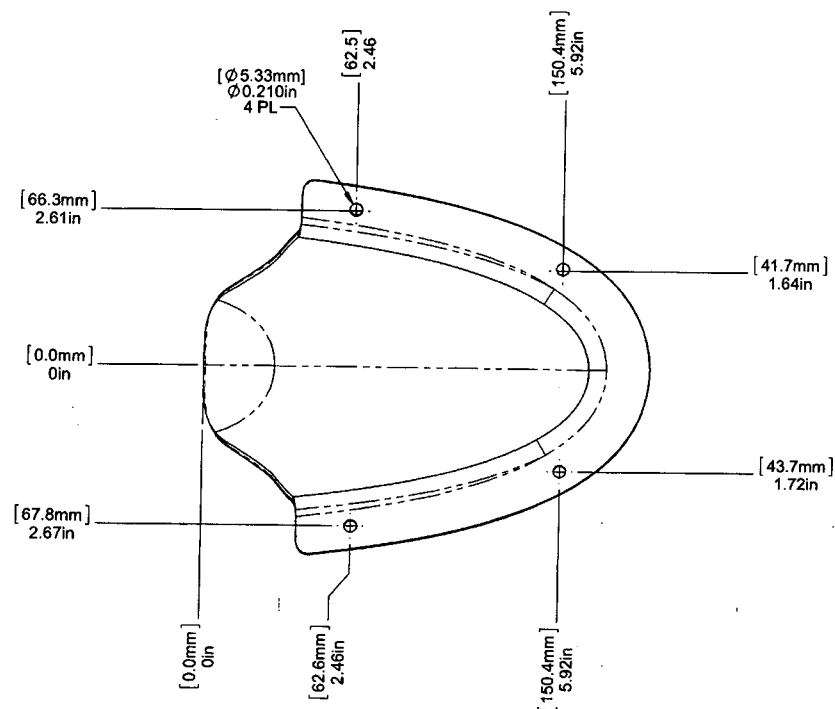
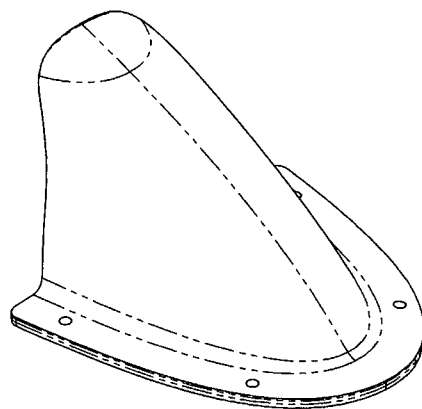
2015 JUN 08

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N D4857-044, REVISION, BATCH NUMBER, AND DATE OF MANUFACTURE, AS PER QSI 044 METHOD 6.1
- 7) WEIGHT: 0.38 lbs (0.17 kg)
- 8) BOND D5117-5/-7 GASKETS TO EDGE OF PART USING DOW CORNING 736 ADHESIVE

APPROVED

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 3 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
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D4857-1 WIPER DEFLECTOR

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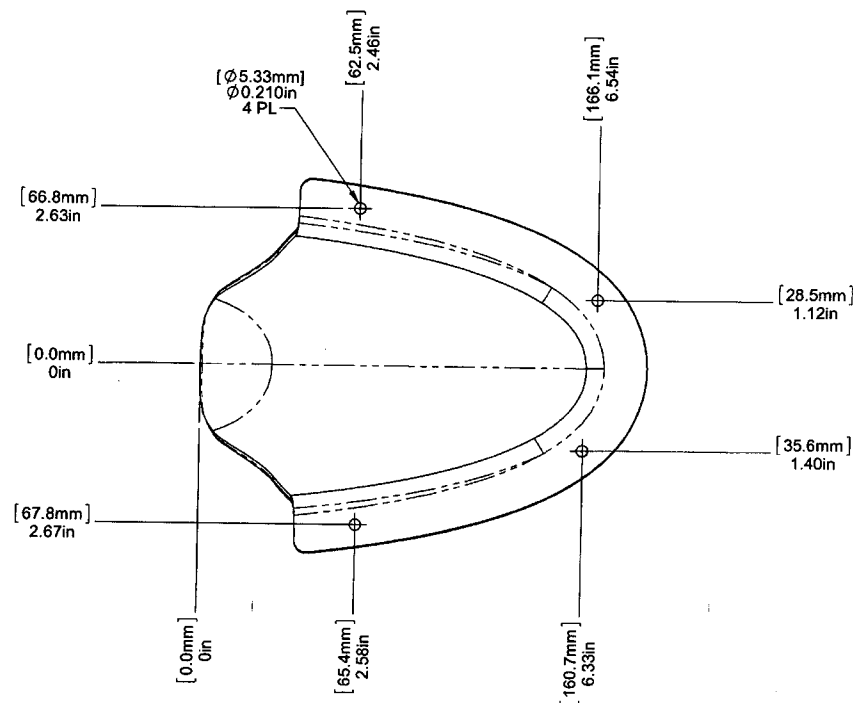
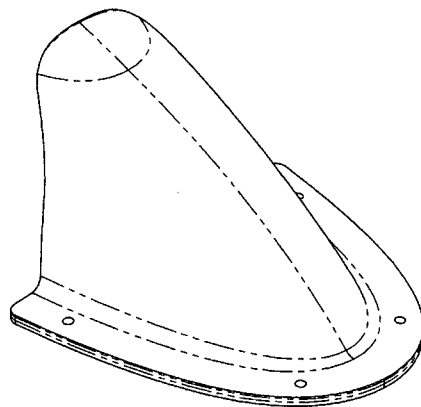
2015 JUN 08

NOTES:

- 1) MATERIAL: MADE FROM D4857-M
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.35 lbs (0.16 kg)
- 8) PART DIMENSIONS CONTROLLED BY CAD MODEL FILE D4857-1-F.IGES

APPROVED

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 4 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
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D4857-3 WIPER DEFLECTOR, LH

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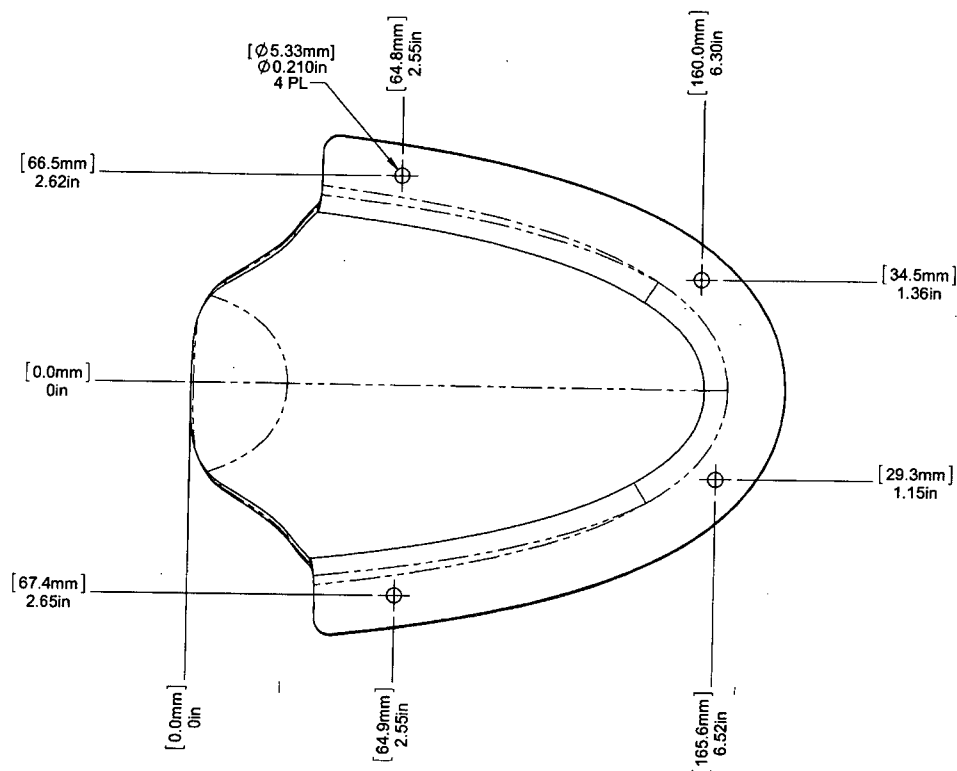
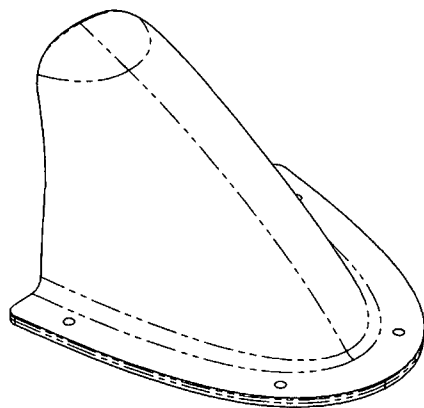
2015 JUN 08

NOTES:

- 1) MATERIAL: MADE FROM D4857-M
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.35 lbs (0.16 kg)
- 8) PART DIMENSIONS CONTROLLED BY CAD MODEL FILE D4857-3-F.IGES

APPROVED

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 5 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
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D4857-4 WIPER DEFLECTOR, RH

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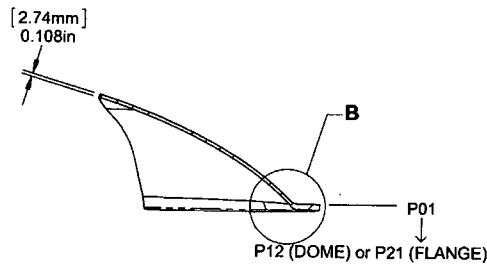
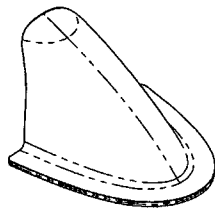
2015 JUN 08

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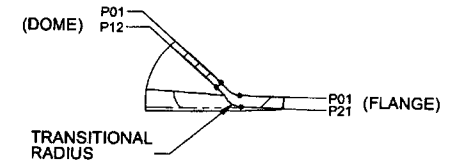
- 1) MATERIAL: MADE FROM D4857-M
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.35 lbs (0.16 kg)
- 8) PART DIMENSIONS CONTROLLED BY CAD MODEL FILE D4857-4-F.IGES

APPROVED

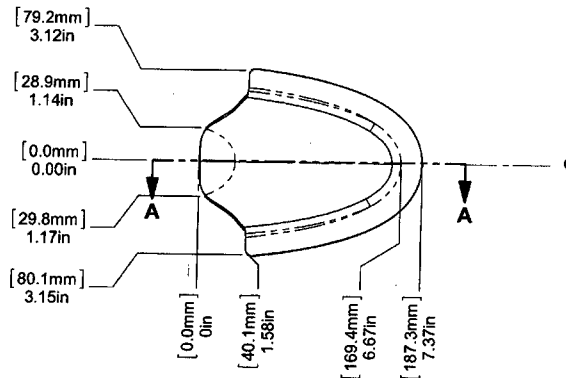
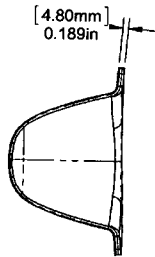
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DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 6 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
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SECTION A-A



DETAIL B



D4857-M WIPER DEFLECTOR

NOTES:

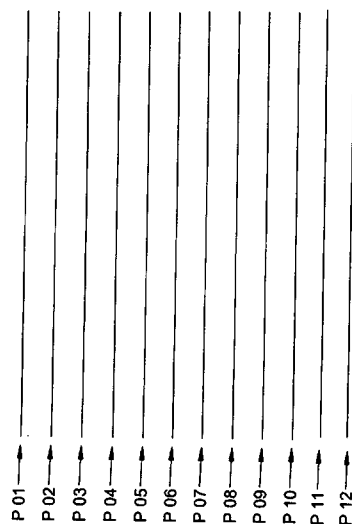
- 1 MATERIAL: KEVLAR #285/353 4H SATIN, EPOXY PREPREG, 250°F CURE, 40% R/C
- 2 MATERIAL: CARBON FIBER PREPREG, ALDILA PREPREG SYSTEM 3K2X2-FR250-204/40 T300,
- 3 MATERIAL: ALDILA #120 E-GLASS AR250 WITH 48% RC;
- 4 FINISH: PRIMER IAW MIL-P-85582, 2-7 MIL MAX.
- 5 TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6 UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 7 BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 8 IDENTIFICATION: N/A
- 9 WEIGHT: 0.35 lbs (0.16 kg)
- 10 PART DIMENSIONS CONTROLLED BY CAD MODEL FILE D4857-M-F.IGES
- 11 SEE SHEET 8 FOR LAYUP SCHEDULE. MANUFACTURE IAW MPP 145. CURE 250°F FOR 4 HOURS.

RELEASED

2015 JUN 08

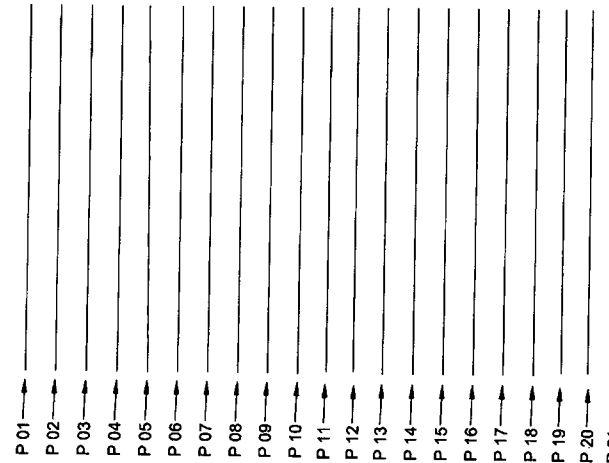
APPROVED

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 7 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
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LAYUP OF LAYERS (DOME)

LAMINATE - .108in (12 LAYERS)			
PLY	WARP ANGLE	MATERIAL	THICKNESS
01	90	[1]	.008-.010
02	0	[1]	.008-.010
03	90	[2]	.008-.010
04	0	[2]	.008-.010
05	90	[2]	.008-.010
06	0	[2]	.008-.010
07	90	[2]	.008-.010
08	0	[2]	.008-.010
09	90	[2]	.008-.010
10	0	[2]	.008-.010
11	90	[2]	.008-.010
12	0	[2]	.008-.010



LAYUP OF LAYERS (FLANGE)

LAMINATE - .189in (21 LAYERS)			
PLY	WARP ANGLE	MATERIAL	THICKNESS
01	90	[1]	.008-.010
02	0	[1]	.008-.010
03	90	[2]	.008-.010
04	0	[2]	.008-.010
05	90	[2]	.008-.010
06	0	[2]	.008-.010
07	90	[2]	.008-.010
08	0	[2]	.008-.010
09	90	[2]	.008-.010
10	0	[2]	.008-.010
11	90	[2]	.008-.010
12	0	[2]	.008-.010
13	90	[2]	.008-.010
14	0	[2]	.008-.010
15	90	[2]	.008-.010
16	0	[2]	.008-.010
17	90	[2]	.008-.010
18	0	[2]	.008-.010
19	90	[2]	.008-.010
20	0	[2]	.008-.010
21	90	[3]	.005

RELEASED

2015 JUN 08 *plh*

APPROVED

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 8 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
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